(I-frame) followed by a plurality of pairs of predictively encoded frames (PB-frame pairs). each PB-frame pair having a corresponding P-block:

dividing each I-frame or PB-frame pair into a plurality of spatially non-overlapping blocks of pixel data:

encoding the blocks from the I-frame (I-blocks) independently from any other frames in the group of pictures:

predictively encoding the blocks from the second frame of the PB-frame pair (P-blocks). based on the I-blocks in the previous I-frame or the P-blocks in the previous PB-frame pair:

bi-directionally predictively encoding the blocks from the first frame of the PB-frame pair (B-blocks). based on the I-blocks in the previous I-frame or the P-blocks in the previous PB-frame pair and the corresponding P-block in the current PB-frame pair:

deriving a scaled forward motion vector and a scaled backward motion vector for the B-block by scaling the motion vector of the corresponding P-block in the current PB-frame pair:

obtaining a final forward motion vector for the B-block by adding a delta motion vector to the scaled forward motion vector: and

obtaining a final backward motion vector for the B-block by subtracting the delta motion vector from the scaled backward motion vector.

2. A method for encoding a sequence of video image frames according to claim 1. wherein

the scaling of the motion vector is based on a temporal reference of the first and second frames of the PB-frame pair.

3. A method for encoding a sequence of video image frames according to claim 1. further comprising the step of forming an encoded output. wherein the encoded output is a bitstream comprising:

temporal reference information for the first and second frames of the PB-frame pairs:

motion vector information for the P-blocks:

quantized residual error information for the P-blocks:

delta motion vector information for the B-blocks: and

quantized residual error information for the B-blocks.

4. A method for encoding a sequence of video image frames according to claim 3. wherein

the output bitstream contains additional information to indicate the presence of at least one of:

the delta motion vector information for the B-blocks: and

the quantized residual error information for the B-blocks.

5. A method for decoding a sequence of video image frames comprising the steps of:

decoding the compressed video image sequence as a set of group of pictures. each group of pictures comprising an I-frame followed by a plurality of PB-frame pairs. each PB-frame pair having a corresponding P-block:

decoding each I-frame or PB-frame pair into a plurality of spatially non-overlapping blocks of pixel data:

decoding the I-blocks from the I-frame independently from any other frames in the group of pictures:

predictively decoding the P-blocks from the second frame of the PB-frame pair based on the I-blocks in the previous I-frame or the P-blocks in the previous PB-frame pair:

bi-directionally predictively decoding the B-blocks from the first frame of the PB-frame pair based on the

I-blocks in the previous I-frame or the P-blocks in the previous PB-frame pair and the corresponding P-block in the current PB-frame pair:

deriving a scaled forward motion vector and a scaled backward motion vector for the B-block by scaling the motion vector of the corresponding P-block in the current PB-frame pair:

obtaining a final forward motion vector for the B-block by adding a delta motion vector to the scaled forward motion vector; and

obtaining a final backward motion vector for the B-block by subtracting the delta motion vector from the scaled backward motion vector.

6. A method for decoding a sequence of video image frames according to claim 5. further comprising the step of forming a decoded output. wherein the decoded output is responsive to a bitstream comprising:

temporal reference information for the first and second frames of the PB-frame pairs:

motion vector information for the P-blocks:

quantized residual error information for the P-blocks:

the delta motion vector information for the B-blocks: and

quantized residual error information for the B-blocks.

7. A method for decoding a sequence of video image frames according to claim 6. wherein

the bitstream contains additional information to indicate the presence of at least one of:

the delta motion vector information for the B-blocks: and

the quantized residual error information for the B-blocks.

8. A method of decoding a sequence of video image frames according to claim 5. wherein

the scaling is based on a temporal reference of the first and second frames of the PB-frame pair.

9. An apparatus for encoding a sequence of video image frames comprising:

means for encoding each frame in a sequence of video image frames into a set of group of pictures. each group of pictures comprising an I-frame followed by a plurality of PB-frame pairs:

means for dividing the I-frame and the PB-frame pair into a plurality of spatially non-overlapping blocks of pixel data:

means for encoding and decoding the I-blocks of the I-frame independently from any other frames in the group of pictures:

means for storing the decoded I-blocks to predictively encode subsequent frames:

means for predictively encoding and decoding the P-blocks of the second frame of the PB-frame pair based on the I-blocks in the previous I-frame or the P-blocks in the previous PB-frame pair:

means for storing the decoded P-blocks to predictively encode subsequent frames:

means for deriving a scaled forward motion vector and a scaled backward motion vector for a B-block by scaling the motion vector of the corresponding P-block in the current PB-frame pair. the B-block being the first frame of the PB-frame pair:

means for obtaining a final forward motion vector for the B-block by adding a delta motion vector to the scaled forward motion vector:

means for obtaining a final backward motion vector for the B-block by subtracting the same delta motion vector from the scaled backward motion vector: and

means for encoding the B-blocks of the first frame of the PB-frame pairs based on the I-blocks in the previous I-frame or the P-blocks in the previous PB-frame pair and the corresponding P-block in the current PB-frame pair using the final forward motion vector and the final backward motion vector.

10. An apparatus for decoding a sequence of video image frames comprising:

means for decoding each frame in a sequence of video image frames into a set of group of pictures. each group of pictures comprising an I-frame followed by a plurality of PB-frame pairs:

means for decoding the I-blocks of the I-frame independently of any other frames in the group of pictures:

means for storing the decoded I-blocks to predictively decode subsequent frames:

means for decoding the P-blocks of the second frame of the PB-frame pair based on the I-blocks in the previous I-frame or the P-blocks in the previous PB-frame pair:

means for storing the decoded P-blocks to predictively decode subsequent frames:

means for deriving a scaled forward motion vector and a scaled backward motion vector for a B-block by scaling the motion vector of the corresponding P-block in the current PB-frame pair. the B-block being the first frame of the PB-frame pair:

means for obtaining a final forward motion vector for the B-block by adding a delta motion vector to the scaled forward motion vector;

means for obtaining a final backward motion vector for the B-block by subtracting the delta motion vector to the scaled backward motion vector: and

means for decoding the B-blocks of the first frame of the PB-frame pairs based on the I-blocks in the previous I-frame of the P-blocks in the previous PB-frame pair and the corresponding P-block in the current PB-frame pair using the final forward motion vector and the final backward motion vector.

11. A method for encoding a sequence of video image frames comprising the steps of:

dividing a source sequence into a plurality of groups of pictures. each group of pictures comprising a first frame (I-frame) followed by a plurality of pairs of predictively encoded frames (PB-frame pairs):

dividing each I-frame or PB-frame pair into a plurality of blocks:

encoding the blocks from the I-frame:

predictively encoding the blocks from the second frame of the PB-frame pair:

bi-directionally predictively encoding the blocks from the first frame of a PB-frame pair (B-blocks):

deriving a scaled forward motion vector and a scaled backward motion vector for the B-block:

obtaining a final forward motion vector for the B-block by adding a delta motion vector to the scaled forward motion vector: and

obtaining a final backward motion vector for the B-block by subtracting the delta motion vector from the scaled backward motion vector.

12. An apparatus for encoding a sequence of video image frames comprising:

means for dividing a source sequence into a plurality of groups of pictures. each group of pictures comprising a

first frame (I-frame) followed by a plurality of pairs of predictively encoded frames (PB-frame pairs):

means for dividing each I-frame or PB-frame pair into a plurality of blocks:

means for encoding the blocks from the I-frame:

means for predictively encoding the blocks from the second frame of the PB-frame pair;

means for bi-directionally predictively encoding the blocks from the first frame of a PB-frame pair (B-blocks);

means for deriving a scaled forward motion ve[illegible] a scaled backward motion vector for the B-block;

means for obtaining a final forward motion vector for the B-block by adding a delta motion vector to the scaled forward motion vector; and

means for obtaining a final backward motion vector for the B-block by subtracting the delta motion vector from the scaled backward motion vector.

* * * * *

13. A method for decoding a compressed video image sequence of a group of pictures including an I-frame followed by a plurality of P-frames and B-frames, comprising the steps of:

decoding a block in the I-frame independently from any other frames in the group of pictures;

predictively decoding a block in a P-frame based on the previous I-frame or a previous P-frame;

bi-directionally predictively decoding a block in a B-frame based on the previous I-frame or a previous P-frame and a block in a P-frame positioned after the B-frame;

deriving a scaled forward motion vector and a scaled backward motion vector for the block in the B-frame by scaling a motion vector of the block in the P-frame positioned after the B-frame;

obtaining a final forward motion vector for the block in the B-frame by adding a delta motion vector to the scaled forward motion vector; and

obtaining a final backward motion vector for the block in the B-frame by adding the delta motion vector to the scaled backward motion vector.

14. A method of decoding a sequence of video image frames according to claim 13, wherein the deriving step includes:

scaling of the forward and backward motion vectors is based on a temporal reference of the B-frame and the P-frame.

15. A method for decoding a sequence of video image frames according to claim 13, further comprising the step of forming a decoded output, wherein the decoded output is responsive to a bitstream comprising:

temporal reference information for the B-frame and the P-frame;

motion vector information for the block in the P-frame;

quantized residual error information for the block in the P-frame;

the delta motion vector information for the block in the B-frame; and

quantized residual error information for the block in the B-frame.

16. A method for decoding a sequence of video image frames according to claim 15, wherein

the bitstream contains additional information indicating a presence of at least one of

the delta motion vector information for the block in the B-frame; and

the quantized residual error information for the block in the B-frame.